Abstract Submitted
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A rigorous approach to the contact mechanics of rough, elastic solids[1] MARTIN MUSER, Univ Western Ontario — The basic ideas of a statistical field theory is presented, which allows one to calculate the displacement field and the pressure distribution $\Pr(p)$ in a contact formed by an elastic body and a rigid counter face of arbitrary topography. The theory is a cumulant expansion, which contains Persson's contact mechanics theory as the leading-order term. The cumulant approach provides a framework with which corrections can now be systematically derived. Comparison is made to numerical data for surfaces that interact via exponentially repulsive forces.

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Martin Muser
Univ Western Ontario

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